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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BUI, DUNG H

ART UNIT

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4153

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/565,967	Applicant(s) FRENCH ET AL.	
	Examiner DUNG BUI	Art Unit 4153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22, 24 and 25 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 19- 22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>01/26/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 18 is rejected to because "the upstream end of the conduit" renders the claim not clear, because "the upstream end of the conduit" refers to the inlet/outlet or it refers to the upstream of the cyclonic apparatus. Appropriate action required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
 1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1-11, 13-18, and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conrad et al (US 6,238,451) in view of Usui (7,044,210).

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Regarding claim 1, Conrad et al discloses the claimed invention for a cyclonic separating apparatus for separating solid material from a fluid (abstract), comprising a separating chamber (figure 2, ref. 32), an inlet (figure 2, ref. 34) communicating with the separating chamber for carrying the fluid with solid matter entrained therein to the separating chamber, and an outlet (figure 2, ref. 74) for carrying the fluid away from the separating chamber after the solid material has been separated therefrom, the outlet being formed by a conduit communicating with an interior portion of the separating chamber and having a longitudinal axis (see figure 2, ref. 74, the conduit is having a longitudinal axis not show).

Conrad et al discloses the claimed invention except for wherein a plurality of grooves are formed in an interior surface of the conduit, and extend in the same direction as the longitudinal axis. Usui teaches that it is known to have wherein a plurality of grooves are formed in an interior surface of the conduit, and extend in the same direction as the longitudinal axis.

Conrad et al and Usui are analogous because both references are directed to interior piping structures.

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to have wherein a plurality of grooves are formed in an interior surface of the conduit, and extend in the same direction as the longitudinal axis, as taught by Usui in order to reduce noise level, increase heat exchange transfer surface area, more flow area, and achieve low pressure drop.

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Regarding claim 2, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein the grooves extend substantially parallel to the longitudinal axis (Usui - abstract).

Regarding claim 3, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein the grooves extend along the conduit for at least one quarter of the length thereof (figure 1 and column 7, lines 13-21).

Regarding claim 4, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein the grooves extend along the conduit for at least half of the length thereof (figure 1 and column 7, lines 12-21).

Regarding claim 5, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein the grooves extend along substantially the entire length of the conduit (figure 1 and column 7, lines 12-21).

Regarding claim 6, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein each groove is identical to the other grooves (figure 1).

Regarding claim 7, Conrad et al in view of Usui discloses all of limitations as set forth above. Conrad et al in view of Usui discloses the claimed invention except for wherein each groove is triangular in shape. Although the reference does not explicitly state wherein each groove is triangular in shape, it would have

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been obvious to one having ordinary skill in the art at the time the invention was made to have modified the reference to include wherein each groove is triangular in shape because this is merely a change in shape and therefore design choice and is within the routine skill in the art. *In re Dailey et al*, 149 USPQ 47.

Regarding claim 8, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein each groove is rectangular in shape (figure 9).

Regarding claim 9, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein the depth of each groove is less than the breadth of each groove (figure 9).

Regarding claim 10, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein adjacent grooves are spaced apart from one another by portions of the interior surface of the conduit (figure 9).

Regarding claim 11, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein the breadth of each groove is greater than the breadth of either of the portions of the interior surface adjacent the said groove (figure 9).

Regarding claim 13, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein the portions of the interior surface of the conduit lie on a cylindrical surface (figure 1).

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Regarding claim 14, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein the grooves are equiangularly spaced about the longitudinal axis (figure 1).

Regarding claim 15, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein at least four grooves are provided (figure 1, having 12 grooves).

Regarding claim 16, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein at least eight grooves are provided (figure 1, having 12 grooves).

Regarding claim 17, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein at least twelve grooves are provided (figure 1, having 12 grooves).

Regarding claim 18, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein the upstream end of the conduit is radiused on the outer surface thereof (Conrad et al – figure 1, ref. 20).

Regarding claim 24, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for a cyclonic_vacuum cleaner comprising the cyclonic separating

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apparatus as claimed in any one of the preceding claim 1, 2, 3, 4 or 5 (Conrad et al - abstract).

Regarding claim 25, Conrad et al in view of Usui discloses all of limitations as set forth above. Note that Conrad et al in view of Usui discloses the claimed invention for wherein the grooves are identical grooves that are triangular in shape and extend substantially the entire length of the conduit (Usui – figures 1 and 9).

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Conrad et al (US 6,238,451) in view of Usui (7,044,210) as applied to claim 1-5, 7, 10, and 12 above, and further in view of Demarest et al (US 2003/0209126).

Regarding claim 12, Conrad et al in view of Usui discloses all of limitations as set forth above. Conrad et al in view of Usui discloses the claimed invention except for wherein the breadth of each groove is substantially the same as the breadth of each portion of the interior surface adjacent the said groove.

Demarest et al teaches that it is known to have wherein the breadth of each groove is substantially the same as the breadth of each portion of the interior surface adjacent the said groove (figure 1). Conrad et al in view of Usui and Demarest et al are analogous because references are directed to interior pipe structures. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have wherein the breadth of each groove is substantially the same as the breadth of each portion of the interior surface adjacent the said groove, as taught by Demarest et al in order to improve noise reduction.

Allowable Subject Matter

5. Claims 19-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Claim 19 is allowable because prior art does not teach fairly suggested wherein at least one inwardly projecting protrusion is provided adjacent at least one of the grooves. Claims 20-22 are depend on claim 19, so they are also allowable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG BUI whose telephone number is (571)270-7077. The examiner can normally be reached on Mon. - Thurs., 7:30 a.m.-5 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571)272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tony G Soohoo/
Primary Examiner, Art Unit 1797
AU 4153 TA

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